

L Number	Hits	Search Text	DB	Time stamp
1	1432	(data! ADJ2 (mining! OR warehouse\$2)) OR olap!	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 14:28
2	51	((data! ADJ2 (mining! OR warehouse\$2)) OR olap!) AND dissimilar\$5	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 14:29
3	7	((data! ADJ2 (mining! OR warehouse\$2)) OR olap!) AND dissimilar\$5 AND (distance\$2 SAME matrix!)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 14:29

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments	Error Definition
1	BRS	L1	2	5930784.pn.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 15:45		
2	BRS	L2	6	("5930784" or "6289354" or "5970490").pn.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 15:49		
3	BRS	L4	6	2 and (database\$1 or data-base\$1 or (data! adj base\$1))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 15:51		
4	BRS	L5	6	4 and data!	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 15:53		
5	BRS	L6	459	heterogeneous near6 measur\$6	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:03		
6	BRS	L7	0	6 and dissimilar\$6 near structure\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 15:55		
7	BRS	L8	0	6 and dissimilar\$6 near6 structure\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:07		
8	BRS	L9	1	6 and dissimilar\$6 same structure\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:07		
9	BRS	L10	2	6 and ((data! adj (warehous\$3 or mining)) or OLAP!)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:10		
10	BRS	L11	19979	10 and distance! or (metrix\$2 or metric\$1)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 15:58		
11	BRS	L12	1	10 and (distance! or (metrix\$2 or metric\$1))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:04		
12	BRS	L13	1407	((data! adj (warehous\$3 or mining)) or OLAP!)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:07		
13	BRS	L14	7	13 and heterogeneous same measur\$6	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:00		
14	BRS	L15	1	14 and (distance! same (metrix\$2 or metric\$1))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:02		

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments	Error Definition
15	BRS	L16	0	6 and (distance! same (metrix\$2 or metric\$1))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:08		
16	BRS	L17	2630	heterogeneous same measur\$6	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:03		
17	BRS	L18	1	17 and dissimilar\$6 near6 structure\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:03		
18	BRS	L19	88	17 and dissimilar\$6	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:11		
19	BRS	L20	61	19 and (distance! or (metrix\$2 or metric\$1))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:08		
20	BRS	L21	1	20 and ((data! adj (warehous\$3 or mining)) or OLAP!)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:05		
21	BRS	L22	0	21 and (computing! or compute! or computed! or computes! or calculat\$6) same distance!	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:06		
22	BRS	L23	0	10 and (computing! or compute! or computed! or computes! or calculat\$6) same distance!	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:10		
23	BRS	L24	4198	dissimilar\$6 same structure\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:07		
24	BRS	L25	1416	24 and dissimilar\$6 near6 structure\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:07		
25	BRS	L28	0	26 and (distance! same (metrix\$2 or metric\$1))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:11		
26	BRS	L26	8	25 and ((data! adj (warehous\$3 or mining)) or OLAP!)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:09		
27	BRS	L29	1	26 and (computing! or compute! or computed! or computes! or calculat\$6) same distance!	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:11		
28	BRS	L30	1407	((data! adj (warehous\$3 or mining)) or OLAP!)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:11		

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments	Error Definition
29	BRS	L31	38	30 and (distance! same (metrix\$2 or metric\$1))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:11		
30	BRS	L32	13	31 and dissimilar\$6	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:11		
31	BRS	L33	5	32 and (computing! or compute! or computed! or computes! or calculat\$6) same distance!	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 16:11		

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments	Error Definition
1	BRS	L1	4377	source\$1 same target\$1 same distance\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 12:07		
2	BRS	L2	701	1 and (compute! or computed! or computes! or computing! or calculat\$6) near9 distance\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 11:23		
3	BRS	L3	11	2 and distance! adj2 (metrix\$2 or metric\$1)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 11:24		
4	BRS	L4	3	5724590.pn.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 12:07		
5	BRS	L5	0	4 and source\$1 same target\$1 same distance\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 12:08		
6	BRS	L6	0	4 and source\$1 same target\$1 and distance\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 12:44		
7	BRS	L7	3	4 and source\$1 same target\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:13		
8	BRS	L8	1	4 and source\$1 same target\$1 same (computing! or computed! or compute! or computes! or calculat\$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:25		
9	BRS	L9	0	8 and distance!	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 12:44		
10	BRS	L10	1	8 and dissimilar!	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 12:44		
11	BRS	L11	2	6289354.pn.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:08		
12	BRS	L12	8129	dissimilar.ab.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:15		
13	BRS	L13	26	12 and 707/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:16		
14	BRS	L14	0	13 and source\$1 same target\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:15		

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments	Error Definition
15	BRS	L15	5	13 and source\$1 and target\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:26		
16	BRS	L16	1235	12 and dissimilar.ti.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:15		
17	BRS	L17	4	16 and source\$1 same target\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:18		
18	BRS	L18	1	16 and 707/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:19		
19	BRS	L19	0	18 and source\$1 same target\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:17		
20	BRS	L20	580869	distance.ab.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:20		
21	BRS	L21	2445	20 and source\$1 same target\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:24		
22	BRS	L22	317	20 and source\$1 same target\$1 same (computing! or computed! or compute! or computes! or calculat\$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:19		
23	BRS	L23	1	22 and 707/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:25		
24	BRS	L24	1	23 and distance	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:22		
25	BRS	L25	11	(distance! adj (metrix\$3 or metric\$3)).ti.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:27		
26	BRS	L26	85	(distance! adj (metrix\$3 or metric\$3)).ab.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:24		
27	BRS	L27	0	26 and source\$1 same target\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:27		
28	BRS	L28	85	26 and (distance! adj (metrix\$3 or metric\$3))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:24		

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments	Error Definition
29	BRS	L29	39	28 and (computing! or computed! or compute! or computes! or calculat\$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:28		
30	BRS	L30	1	29 and 707/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:28		
31	BRS	L31	0	30 and source\$1 and target\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:28		
32	BRS	L32	9	26 and (distance! adj (metrix\$3 or metric\$3)).ti.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:27		
33	BRS	L33	16	26 and (distance! adj (metrix\$3 or metric\$3)).clm.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:27		
34	BRS	L34	0	33 and source\$1 same target\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:27		
35	BRS	L35	0	33 and source\$1 and target\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:28		
36	BRS	L36	16	33 and (computing! or computed! or compute! or computes! or calculat\$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:28		
37	BRS	L37	1	36 and 707/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:29		
38	BRS	L38	1	37 and structure\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 13:30		

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Your wildcard search against 2000 terms has yielded the results below

Search for additional matches among the next 2000 terms

starting with: OBJECT\$(OBJECT-INTERACTION).CLM.

### Search Results -

Terms	Documents
((distance near metric\$ or dissimilar\$) and (comput\$ or calculat\$) and target near5 (object\$ or data) and source near5 (object\$ or data)).clm.	1

**Database:**

US Patents Full-Text Database  
US Pre-Grant Publication Full-Text Database  
JPO Abstracts Database  
EPO Abstracts Database  
Derwent World Patents Index  
IBM Technical Disclosure Bulletins

**Search:**

L4

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### Search History

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**Set Name Query**

side by side

**Hit Count Set Name**

result set

*DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=OR*

<u>L4</u>	((distance near metric\$ or dissimilar\$) and (comput\$ or calculat\$) and target near5 (object\$ or data) and source near5 (object\$ or data)).clm.	1	<u>L4</u>
<u>L3</u>	((distance near metric\$ or dissimilar\$) and (comput\$ or calculat\$) and target near5 (object\$ or data) and source near5 (object\$ or data)).ab.	0	<u>L3</u>
<u>L2</u>	((distance near metric\$ or dissimilar\$) and (comput\$ or calculat\$) and target near5 (object\$ or data) and source near5 (object\$ or data)).ti.	0	<u>L2</u>
<u>L1</u>	((distance near metric\$ or dissimilar\$) and (comput\$ or calculat\$) and target near5 (object\$ or data) and source near (object\$ or data))	138	<u>L1</u>

END OF SEARCH HISTORY

**WEST****End of Result Set**

Generate Collection

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L4: Entry 1 of 1

File: USPT

Mar 3, 1998

DOCUMENT-IDENTIFIER: US 5724590 A

TITLE: Technique for executing translated software

## CLAIMS:

1. An apparatus, comprising:

a target processor for executing translated object code computer programs;

one or more storage devices representing a plurality of storage locations addressable by the target processor;

some of the storage locations containing data representing an image of an address space of a source processor dissimilar to the target processor, such that at least some object code which is executable on the source processor is not executable on the target processor;some others of the storage locations containing a translation of an object code computer program which before translation is executable by the source processor but not by the target processor, the object code computer program being expressed in terms of a first instruction set, at least one of the instructions of the first instruction set having primary and side effects, and the translation of the object code computer program having been created in part by (i) expansion of the instructions of the object code computer program into a plurality of intermediate language instructions which explicitly replicate the primary and side effects of the instructions of the object code computer program and (ii) elimination of certain ones of the intermediate language instructions which do not affect any substantial functionality of the object code computer program, the translation of the object code computer program being executable on the target processor without further translation;

means for monitoring one or more locations containing data representing the image and corresponding to a predetermined peripheral device associated with the source processor; and

means responsive to the monitoring means for updating a storage location outside the image corresponding to a predetermined peripheral device associated with the target processor.

9. An apparatus, comprising:

a target processor for executing translated object code computer programs;

one or more storage devices representing a plurality of storage locations addressable by the target processor;

some of the storage locations containing data representing an image of an address space of a source processor dissimilar to the target processor, such that at least some object code which is executable on the source processor is not executable on the target processor;some others of the storage locations containing a translation of an object code computer program which before translation is executable by the source processor but not by the target processor, the object code computer program being expressed in terms of a first instruction set, at least one of the instructions of the first instruction set

having primary and side effects, and the translation of the object code computer program having been created in part by (i) expansion of the instructions of the object code computer program into a plurality of intermediate language instructions which explicitly replicate the primary and side effects of the instructions of the object code computer program and (ii) elimination of certain ones of the intermediate language instructions which do not affect any substantial functionality of the object code computer program, the translation of the object code computer program being executable on the target processor without further translation;

means for monitoring one or more locations outside the image containing data corresponding to a predetermined peripheral device associated with the target processor; and

means responsive to the monitoring means for updating a storage location containing data representing the image and corresponding to a predetermined peripheral device associated with the source processor.

17. An apparatus, comprising:

a target processor for executing translated object code computer programs, which before translation were executable by a source processor but not by a target processor, each of the object code computer programs being expressed in terms of a first instruction set, at least one of the instructions of the first instruction set having primary and side effects, and each translated object code computer program having been created in part by (i) expansion of the instructions of the object code computer program into a plurality of intermediate language instructions which explicitly replicate the primary and side effects of the instructions of the object code computer program and (ii) elimination of certain ones of the intermediate language instructions which do not affect any substantial functionality of the object code computer program, the translated object code computer program being executable on the target processor without further translation;

one or more elements addressable by the target processor representing an address space of the target processor;

at least one of the elements containing an image of an address space of the source processor; and

an event monitor for detecting changes to a portion of the image corresponding to a device associated with the source processor and updating a location in the address space of the target processor corresponding to a device associated with the target processor.

25. An apparatus, comprising:

a target processor for executing translated object code computer programs, which before translation were executable by a source processor but not by the target processor, each of the object code computer programs being expressed in terms of a first instruction set, at least one of the instructions of the first instruction set having primary and side effects, and each translated object code computer program having been created in part by (i) expansion of the instructions of the object code computer program into a plurality of intermediate language instructions which explicitly replicate the primary and side effects of the instructions of the object code computer program and (ii) elimination of certain ones of the intermediate language instructions which do not affect any substantial functionality of the object code computer program, the translated object code computer program being executable on the target processor without further translation;

one or more elements addressable by the target processor representing an address space of the target processor;

at least one of the elements containing an image of an address space of the source processor; and

an event monitor for detecting changes to a portion of the address space of the target processor corresponding to a device associated with the target processor and updating a location in the image corresponding to a device associated with the source processor.

33. A method for executing translated object code computer programs which before

translation were executable by a source computer system but not by a target computer system, the target computer system having a target computer system address space and an image of a source computer system address space, each of the object code computer programs being expressed in terms of a first instruction set, at least one of the instructions of the first instruction set having primary and side effects, and each translated object code computer program having been created in part by (i) expanding the instructions of the object code computer program into a plurality of intermediate language instructions which explicitly replicate the primary and side effects of the instructions of the object code computer program and (ii) eliminating certain ones of the intermediate language instructions which do not affect any substantial functionality of the object code computer program, the translated object code computer program being executable on the target computer system without further translation, the method comprising the steps of:

monitoring a location in the image of the source computer system address space contained in the target computer system into which data is written in response to operation of a device which is associated with the source computer system; and

updating a location in the target computer system address space outside the image corresponding to a device associated with the target computer with the written data.

34. A method for executing translated object code computer programs which before translation were executable by a source computer system but not by the target computer system, the target computer system having a target computer system address space and an image of a source computer system address space, each of the object code computer programs being expressed in terms of a first instruction set, at least one of the instructions of the first instruction set having primary and side effects, and each translated object code computer program having been created in part by (i) expanding the instructions of the object code computer program into a plurality of intermediate language instructions which explicitly replicate the primary and side effects of the instructions of the object code computer program and (ii) eliminating certain ones of the intermediate language instructions which do not affect any substantial functionality of the object code computer program, the translated object code computer program being executable on the target processor without further translation, the method comprising the steps of:

monitoring a location in the target computer system address space into which data is written in response to operation of a device which is connected to the target computer system; and

updating a location in the image of the source computer system address space contained in the target computer system with the written data.

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments	Error Definition
1	BRS	L1	4377	source\$1 same target\$1 same distance\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 11:22		
2	BRS	L2	701	1 and (compute! or computed! or computes! or computing! or calculat\$6) near9 distance\$1	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 11:23		
3	BRS	L3	11	2 and distance! adj2 (metrix\$2 or metric\$1)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/03/21 11:24		